

REMARKS

I. Status and Disposition of the Claims

Claims 43-82 are pending and under consideration on the merits. No claims are amended herein.

Applicants respectfully acknowledge the Examiner's indication that claims 52, 54, 59, 60, 65, 70, 74-76, and 82 would be allowable if rewritten in independent form to include all the limitations of the base claim and any intervening claims. See Office Action at 4. Applicants maintain, however, that all of the pending claims are patentable for at least the following reasons.

II. Response to Claim Rejection

The Examiner continues to reject claims 43-51, 53, 55-58, 61-64, 66-73 and 77-81 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent no. 5,643,342 ("Andrews"). See Office Action, page 2-4. The basis of this rejection is largely the same as that already of record, and so is not repeated or discussed at length herein. Compare Office Action dated October 18, 2007, pages 2-4; Office Action dated April 6, 2007, pages 2-4. Indeed, the only difference in the rationale presented in the present office action lies in the Examiner's application of Andrews with respect to the amount of fossil fuel recited in present claims 43, 47, 48, 61, 69, and 70.

Applicants respectfully remind the Examiner that several basic factual inquiries must be made in order to determine the obviousness or non-obviousness of claims of a patent application under 35 U.S.C. § 103. These factual inquiries, set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459, 467 (1966), require the Examiner

to:

- (1) Determine the scope and content of the prior art;
- (2) Ascertain the differences between the prior art and the claims in issue;
- (3) Resolve the level of ordinary skill in the pertinent art; and
- (4) Evaluate evidence of secondary considerations.

The obviousness or non-obviousness of the claimed invention is then evaluated in view of the results of these inquiries. *Graham*, 383 U.S. at 17-18, 148 U.S.P.Q. at 467; *see also KSR Internat'l Co. v. Teleflex Inc.*, 82 U.S.P.Q.2d 1385 (U.S. 2007).

Thus, in order to satisfy the initial burden of establishing a *prima facie* case of obviousness, the Examiner must first show that the prior art references teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). The Examiner must also show that there is some suggestion or motivation, either in the references or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references. *In re Rouffet*, 149 F.3d 1350, 47 U.S.P.Q.2d 1453 (Fed. Cir. 1998). The Supreme Court, in the recent *KSR* case, recognized that a showing of "teaching, suggestion, or motivation" could provide helpful insight in determining whether the claimed subject matter is obvious under Section 103(a). *See KSR Internat'l Co. v. Teleflex Inc.*, 82 U.S.P.Q.2d 1385 (U.S. 2007). In addition, the Supreme Court mandated that "[t]o facilitate review, this analysis [of whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue] should be made explicit." *Id.* (citing *In re Kahn*, 441 F.3d 977, 988 (Federal Circuit, 2006) ("[R]ejections on obviousness grounds cannot be sustained by

mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”).

Following the *KSR* decision, the Office issued a memorandum to its technology center directors on May 3, 2007, indicating that **“in formulating a rejection under 35 U.S.C. § 103(a) based upon a combination of prior art elements, it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed.”** (Emphasis in original).

A. “from 60 to 95% by weight of a fossil fuel.”

In the present case, a fair reading of Andrews reveals that one of ordinary skill in the art at the time the invention was made would not have been motivated to modify Andrews so as to arrive at the presently claimed invention. That is, one of ordinary skill in the art at the time the invention was made would not have been motivated to utilize 60% of a fossil fuel in Andrew's fuel pellet.

The Examiner admits that Andrews only discloses a fuel pellet comprising, *inter alia*, “from **0 to about 50%** by weight of coal.” See Office Action, page 3 (emphasis added); Andrews column 4, line 6 (“the fuel pellet is comprise of . . . from about 0 to about 50% by weight of coal”). As such, Andrews clearly does not disclose the claimed fuel composition or method, which contains or utilizes, *inter alia*, “from **60 to 95%** by weight of a fossil fuel.” See claims 43 and 61 (the only independent claims) (emphasis added).

Despite this clear deficiency, the Examiner argues that

With respect to the claimed amount of fossil fuel, 60-95 % by wt, it is the examiner's position that Andrew[s] teaching of from 0 to about 50% by

weight of coal is close enough to the claimed 60% by wt that one skilled in the art would expect the fuel pellets to have the same or similar properties. *Titanium Metals Corp. v. Banner*, 227 USPQ 773 (Fed Cir 1985). It is well settled that the term "about" is flexible and extends the range of the parameters.

Id. In response, Applicants respectfully disagree with the Examiner's position for at least the following reasons.

At a minimum, Applicants submit that the Examiner's position is based on an incorrect application of 35 U.S.C. § 103(a) and a misapplication of the Federal Circuit's decision in *Titanium Metals*.

1. § 103(a)

As noted by the Examiner, Andrews discloses a fuel pellet that comprises, *inter alia*, cellulosic material, coal (a known fossil fuel), and densified thermoplastic particles. *see* Andrews, column 4, lines 1-8. As to the amount of coal in the fuel pellet, Andrews discloses that "the fuel pellet is comprises of. . . from about 0 to **about 50%** by weight of coal" *Id.* at column 4, lines 1-8 (emphasis added). Andrews is silent with respect to fuel pellets comprising coal in an amount higher than about 50% by weight, such as the claimed 60%. Further, it is noteworthy that Andrews' invention is intended to provide a fuel pellet that produces a clean and efficient industrial fuel that has a heat output **greater than** that of coal. *See id.* at column 1, lines 5-12; column 2, lines 60-67.

Applicants submit that one of ordinary skill in the art would not have been motivated to modify Andrews' fuel pellet such that it contains, *inter alia*, the claimed content of fossil fuel. Again, Andrews is silent with respect to fuel pellets that comprise greater than about 50% by weight of coal. Applicants respectfully submit that a

reference's silence as to a claim element cannot serve as the "clear and particular" motivation necessary to establish a prima facie case of obviousness. *See In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999) (explaining that the motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or from the nature of the problem to be solved but must still be supported by actual evidence that is "clear and particular").

Further, the Examiner has not provided any rational or evidence indicating why "one skilled in the art would expect the fuel pellets to have the same or similar properties." Office Action at 4. If anything, one would expect that increasing the amount of coal in Andrew's pellet would cause the resulting pellet to burn at a temperature *closer to*, if not the same as, that of coal alone. As such, *Andrews* teaches away from compositions containing greater than about 50% by weight of coal, such as the claimed invention. *See* column 2, lines 62-67 (explaining that Andrews invention is formulated to generate a heat output greater than that of coal.)

In fact, Applicants note that the suggested modification of Andrews may render Andrews' fuel pellet unsuitable for its intended purpose. *See In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984) ("If [a] proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification"). That is, by adding additional coal to Andrews' pellet, it would be expected that the resulting pellet would burn at closer to, if not the same, temperature as pure coal. As a result, such a modification may render Andrew's invention unsuitable for its intended purpose, i.e., a fuel pellet that burns at a temperature *higher than* coal. *See Andrews*, column 2, lines 60-67.

2. Titanium Metals

As to the *Titanium Metals* case, Applicants respectfully submit that the Examiner has misunderstood and misapplied the case law. See *Titanium Metals Corp. v. banner*, 227 USPQ 773 (Fed. Cir. 1985). In *Titanium Metals*, the patent application at issue was drawn to a titanium alloy containing specific amounts of nickel and molybdenum. See *id.* at 774. In particular, claim 3 of the patent application recited a titanium alloy containing 0.8% nickel and 0.3% molybdenum, and which exhibit “good corrosion resistance in hot brine environments.” *Id.* The U.S. Patent and Trademark Office (“USPTO”) rejected claim 3 of the application under 35 U.S.C. § 103(a) as being unpatentable over of a Russian article with a chart disclosing at least two points (1% Mo+Ni and 1.25% Mo+Ti) where a titanium-molybdenum-nickel (“TiMoNi”) alloy containing 0.25% and 0.75% of molybdenum and nickel, respectively, corresponded to the 1% point. See *id.* at 775. Titanium Metals appealed the rejection, which was upheld by both the Board of Appeals and Interferences and the District Court of the District of Columbia. See *id.* at 776. Titanium Metals then appealed to the Federal Circuit.

As to the obviousness rejection of claimed content of claim 3, the Federal Circuit affirmed, finding the claims 0.3% Mo and 0.8% Ni content to be obvious in view of the Russian article’s disclosure of a range of 0.25% to 0.31% Mo and 0.75% to 0.94% Ni at a 1:3 ratio. *Id.* at 779 (0.31% Mo and 0.94% Ni associated with the 1.24% point on the chart). Thus, *Titanium Metals* is a case concerning overlapping ranges. See M.P.E.P. § 2144.05. For at least this reason, Applicants submit that the court’s rationale in

Titanium Metals is inapplicable in the present case. It offers no support for the Examiner's assertion that the claimed "60%" is encompassed by Andrews' "about 50%."

Further, the Examiner's use of *Titanium Metals* in support of an assertion that "one skilled in the art would expect the fuel pellets [of the present invention and Andrews] to have the same or similar properties" is likewise misplaced. See Office Action, page 4. As explained above, the claimed invention is far more compositionally distinct from the prior art than the claims at issue in *Titanium Metals*. As also explained above, and contrary to the Examiner's assertions, one would expect that increasing the amount of coal in Andrews' pellet would result in a pellet that burns with a temperature more closely approximating that of pellet of pure coal. As such, it is clear that the Examiner's assertion -- that one would expect Andrews pellet and the claimed pellet to exhibit the same properties -- has no tenable basis.

B. "wherein said non-fossil solid fuel has an apparent density equal to or less than 0.6 g/cm³"

Andrews also does not teach a composition "wherein said non-fossil solid fuel has an apparent density equal to or less than 0.6 g/cm³." The Examiner's allegation that "no unobviousness is seen in this difference because Andrews teaches that the density of the fuel may be optimized to produce a quicker burning fuel" does not stand up to scrutiny.

The only passages of Andrews relating to the "density of the non-fossil solid fuel" component expressly teach that these materials need to be densified to increase their apparent density. Column 5, lines 17-24, column 6, lines -20. In fact, densification is

taught to be necessary to avoid problems inherent to Andrews' process. Column 6, line 8-11.

Since a person of ordinary skill in the art would recognize that water has a density of 1.0 g/cm^3 , they would readily recognize that Andrews' teaching of densification is contrary to the claims' requirement of an apparent density significantly less than that of water, *i.e.*, " $\text{less than } 0.6 \text{ g/cm}^3$ " in claims 43 and 61 and " $\text{from } 0.3 \text{ to } 0.5 \text{ g/cm}^3$ " in claims 46 and 68. A person of ordinary skill in the art would recognize that there is no teaching in Andrews that would direct one to try to achieve a density less than 0.6 g/cm^3 .

Accordingly, the teachings of Andrews are directed to increasing the apparent density of the non-fossil solid fuel, which is contrary to the claims.

C. "wherein said urban solid waste has been obtained by removing therefrom putrefiable organic compounds"

Finally, Andrews does not teach a composition "wherein said urban solid waste has been obtained by removing therefrom putrefiable organic compounds." While Applicants have found that putrefiable organic compounds create unwanted complexities to the process (Specification at page 2), Andrews expressly incorporates such materials. *See e.g.*, Col. 4, line 50 (grass clippings), line 53 (potato starch particles), line 57 (diapers, incontinent products, sanitary napkins, which are presumably used products). Accordingly, Andrews does not appreciate the recited need to remove putrefiable organic compounds from the fuel pellets.

For at least the foregoing reasons, Applicants submit that the § 103(a) rejection of claims 43-51, 53, 55-58, 61-64, 66-73 and 77-81 is improper, and should be withdrawn.

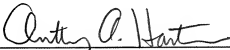
III. CONCLUSION

In view of the foregoing remarks, Applicants respectfully request reconsideration of this application and the timely allowance of the pending claims. Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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